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## Botanical Gleanings in Michigan.

OLIVER ATKINS FARWELL

The collecting season of 1923 was inaugurated May 2nd, by a trip to Washington, with the purpose of collecting the flowers of *Tussilago Farfara*; no evidence of them was discovered. The floral season was some three or four weeks later than usual due to a cold and lingering winter, made prominent by a downfall of "the beautiful" to an extent of six inches on May the ninth. A trip to the Ohio border on May 30th was disappointing in its results; but on the Ohio side, near Alexis, were found the following:—*Floerkea proserpinoides*, *Rubus pergratus*, *Geum vernum*, *Uraspermum aristatum* var. *villicaule*, *Thaspium barbinode* and its var *angustifolium*. Mr. Billington, of Detroit, and I were the guests of Prof. B. A. Walpole, of East Lansing, early in June and a very pleasant and profitable trip was made to Grand Ledge. Among the interesting plants found there may be mentioned: *Panicum Werneri*, *P. barbulatum*, *Poa sylvestris*, *Moehringia lateriflora*, *Isopyrum biternatum*, and *Primula Mistassinica*.

The Lotus, *Nelumbo lutea*, was found in abundance at Halfway Creek and the Michigan sector of Maumee Bay, a station not cited by Beal in the Michigan Flora. Not far away from this station Mr. Gladewitz gathered the only orchid *Blephariglottis leucophea*, seen on that trip (July 11).

In what follows, where both the year and the name of the collector are not given, it is to be understood that Farwell and Gladewitz are the collectors for the year 1923.

*Juniperus Virginiana*, L. The Red Cedar is scarce but well distributed; Ypsilanti, No. 86a, June 11, 1912; Rochester, No. 86b, May 12, 1909; Parkedale, No. 3222, Oct. 27, 1912; Redford, No. 4741a, Oct. 14, 1917.

*Juniperus Virginiana*, L., var. *pyramidalis*, Carr. A rather handsome variety with a columnar form. Hillsides near Rochester, No. 6854, Oct. 3.

*Juniperus Virginiana*, L., var. *reptans*, Beissn. A procumbent variety indistinguishable from *J. horizontalis* except by its flowers and fruits. Rocky shores of Keweenaw Co., No. 86, May 15, 1884.

*Potamogeton alpinus*, Balbis. Found on the shores of St. Clair River, at Marine City, No. 6751, Aug. 29.

*P. Americanus*, C. & S. In Bell River at Marine City, No. 6743, Aug. 29. Also nearby, the variety with thick, broadly elliptic, obtuse, floating leaves which has been called var. *Noeaboracensis* (Morong) Benn. No. 6744, Aug. 29.

*P. gramineus*, L., var. *lacustris* (Fries) Farwell. In St. Clair River at Marine City, No. 6746, Aug. 29. Nearby was the var. *parvifolius* (Nolte) Farwell which is distinguished by its small, coriaceous floating leaves. No. 6748, Aug. 29.

*Potamogeton amplifolius*, Tuckerm. Along the shores of lakes in shallow water near Linden, No. 6668, Aug. 1; Lake Orion, No. 6838, Sept. 26, (no coriaceous floating leaves).

*Potamogeton angustifolius*, Berchtold & Presl. In deep water, Lake Orion, No. 900, Aug. 29, 1895 and Lakeville Lake, Billington, Farwell and Gladewitz, No. 6653, July 26, 1923 (no coriaceous floating leaves but upper leaves subcoriaceous); Hamburg, No. 6765, Sept. 5.

*Potamogeton lucens*, Linn. Similar to the preceding but with longer and narrower leaves none of which is subcoriaceous. In deep water Lake Orion, No. 905, Aug. 29, 1895, and in Lakeville Lake, Billington, Farwell and Gladewitz, No. 5333, July 20, 1919, and July 26, 1923.

*Potamogeton perfoliatus*, L. In the St. Clair River at Marine City, No. 6752, Aug. 29.

*Potamogeton perfoliatus*, L., var. *Richardsonii*, Benn. In the St. Clair River at Marine City, No. 6753, Aug. 29.

*Potamogeton perfoliatus*, L., var. *bupleuroides* (Fernald) n. comb. *P. bupleuroides* Fernald, Rhodora X (1908) 46. In the St. Clair River at Marine City. No. 6754, Aug. 29. *P. Richardsonii* and *P. bupleuroides* pass insensibly into *P. perfoliatus*

and can scarcely be considered as distinct species. Britton and Brown reduce them to synonymy.

*Potamogeton foliosus*, Raf., var. *Niagarensis* (Tuckerm.) Morong. In the Bell River at Marine City, No. 6736, Aug. 29.

*Najas flexilis* (Willd.) Rostk. & Schmidt., var. *robusta*, Morong. This stout, elongated form with flat leaves was found in Lakeville Lake, Billington, Farwell and Gladewitz, No. 6654, July 26, 1923.

*Panicum Werneri*, Scribn. Grand Ledge, Billington and Farwell, No. 6562, June 9, 1923.

*Panicum barbulatum*, Michx. Grand Ledge, Billington and Farwell, No. 6559, June 9, 1923.

*Muhlenbergia racemosa* (Michx.) BSP., var. *ramosa* (Vasey) Beal. On the wet marshy covering of a submerged lake near Hamburg, No. 6763, Sept. 5. The typical form of the species also was found there, No. 6762, Aug. 29.

*Deschampsia caespitosa* (L.) Beauv. A very beautiful grass growing in the crevices of rocks on the lake shore. Associated with *Solidago racemosa*, *Artemisia Canadensis* and *Campanula rotundifolia* var. *Langsdorfiana*. Eagle Harbor, No. 6620, June 29, 1920; sand dunes northwest of Clifton, No. 717, August 20, 1889.

*Eragrostis Eragrostis* (L.) Karst. This grass seen last year for the first time, was found in abundance this year at Imlay City; No. 6682, Aug. 15; Ann Arbor, No. 6780, Sept. 12, 1923.

*Poa sylvestris*, Gray. Somewhat similar to *P. debilis* but it has much broader leaves and the lemmas have pubescent nerves. Grand Ledge No. 6569, June 10, 1923.

*Bromus inermis*, Leyss. In waste grounds at Linden, No. 6664, August 1.

*Eleocharis rostellata*, Torr. Beal records this from the Lower Peninsula only. In peat bogs associated with *Carex gynocrates* and *C. exilis*. Eagle Harbor, No. 6631, June 29, 1923.

*Eriophorum Virginicum*, L., var. *album*, A. Gr. This variety was found in abundance in an extensive peat bog near Oxford. Some of the plants had scales that were only 1 nerved instead of the usual 3-5 ribs. No. 6831, Sept. 26.

*Carex gynocrates*, Wormsk. Beal records this from the Lower Peninsula only, as *C. Redowskyana*. In peat bogs under tamaracks. Eagle Harbor, No. 6630, June 29, 1923.

*Carex exilis*, Dew. Superficially, this looks like a tall, coarse state of the preceding; but the perigynia are of a different shape and the spikes are gynecandrous while those of the above are androgynous. Both are frequently dioecious. In peat bogs under tamaracks. Eagle Harbor, No. 6629, June 29, 1923; Calumet No. 389, June 20, 1886.

*Carex echinata*, Murr., var. *angustata* (Carey) Bailey. This is a slender variety with long, narrow perigynia. In wet grounds or in bogs. Eagle Harbor, No. 6622, June 29, 1923; Clifton, No. 1792, August, 1902.

*Carex sterilis*, Willd. Rigid, often a meter high; perigynia with 10-15 nerves on the inner face. Reported as *C. rosea* as the spikes are often staminate at the top, generally dioecious. Mr. Mackenzie considers this to be typical *C. sterilis*, Willd. Washington, *Gladewitz and Farwell*, No. 5895, June 21, 1921 and No. 6203, June 21, 1922; Oxford, No. 6681, Aug. 8, 1923.

*Carex hirta*, L. On a vacant lot where it covers perhaps 150 square feet of ground to the exclusion of everything else. Probably the first Michigan station put on record. Shelbyville, No. 6584, June 21, 1923.

*Carex aristata*, R. Br. In a bog. Shelbyville, No. 6574, June 21, 1923.

*Carex aristata*, R. Br., var. *imberbis* (A. Gr.) n. comb. *C. trichocarpa* var. *imberbis* A. Gr. Manual, (1867) 597. This has the sheaths glabrous but it passes into the species with hirsute sheaths and leaves and is associated with it. Shelbyville, No. 6573, June 21, 1923.

*Arisaema triphyllum* (L.) Schott, var. *pusillum*, Peck. A low plant with the under side of the leaves green, not glaucous, nor paler than the upper surface. Under maples near Washington, No. 6482, May 23.

*Lilium philadelphicum*, Y., var. *andinum* (Nutt.) Ker. In riding through the State from Houghton to Bay City over the D., S. S. & A. and the M. C., I saw from the car window, probably several thousand plants of this lily; of this number per-

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haps a score had yellow flowers; the others had flowers of a deep red color. About 90 per cent of the plants were terminated by a single flower and the other ten per cent bore an umbel of from two to six flowers, mostly three or four. It prefers wet meadows but is frequently found in rich woods or in dry, rocky situations and even in peat bogs. Eagle Harbor, No. 6606, June 29, 1923; Copper Harbor, No. 382, June 20, 1886; Birmingham, No. 382a, Sept. 7, 1903; Rochester, No. 382b, August 15, 1909; Wiard, No. 382c, June 25, 1910; Parkedale Farm, No. 2807, July 4, 1912, and No. 3457, June 15, 1913.

*Disporum Cahnæ*, Farwell. The fruit is an obovoid, pubescent capsule, obtusely three-angled, in size and shape, much resembling that of *Uvularia grandiflora*.

*Blephariglottis ciliaris* (L.) Rydb. The Yellow-fringed Orchis is a rare plant in Michigan. Three or four plants were found in a bed of sphagnum on the shores of what is called the "Hidden Lake," near Lakeville. *Billington, Farwell and Glade-witz*, No. 6659, July 26, 1923.

*Arethusa bulbosa*, L. In peat bogs. Very scarce. Eagle Harbor, No. 6612, June 29, 1923; Clifton, No. 728, Sept. 19, 1889.

*Salix alba*, L., var. *calva*, G. F. W. Meyer [var. *coerulea* (Sm.) Koch.] Only leaves were collected at this season of the year and neither these nor the color of the branches were characteristic of *S. alba*, *S. vittelina* or *S. fragilis*; the latter two grew in the vicinity and it may be a hybrid of these two species or what Beal lists as *S. fragilis alba* Wimmer. Banks of the Clinton River at Rochester, No. 6845, October 3.

*Salix pedicellaris*, Pursh, var. *hypoglauca*, Fernald. On the shaky and very pliable sod overlaying a submerged lake near Hamburg. No. 6768, August 20.

*Salix candida*, Flugge. With the last, No. 6769, Aug. 29.

*Alnus crispa* (Ait.) Pursh. The Mountain Alder; it has been the subject of revision by Mr. Fernald who has come to the conclusion that it is not identical with the European species, hence the old names *A. viridis* and *A. Alnobetula* are to be discarded. Rocky shores at Eagle Harbor, No. 6599, June 29, 1923; sandy shores northwest of Clifton, No. 19, June 18, 1883.

*Alnus mollis*, Fernald. River banks, etc., at Lake Linden, No. 3083, August 24, 1912; Grosse Isle, No. 3364, Sept. 18, 1913.

*Humulus Japonicus*, Sieb. & Zucc. Waste grounds at Marine City, No. 6755½, August 29.

*Humulus Lupulus*, L., var. *neo-mexicanus*, Nels. & Cockr. *H. Americanus*, Nutt. Railroad banks near Whitmore Lake, No. 6772, September 5. This is plentiful along the shores of St. Clair River at Marine City. West of Ypsilanti, No. 6804, Sept. 12, 1923.

*Rumex Patientia*, L., var. *Kurdicus*, Boiss. This looked very much like *R. crispus* but the leaves were too large, their margins were even, and their bases were acute. Ypsilanti, No. 6807, September 19.

*Atriplex argentea*, Nutt. This species of the western regions was found along the railway at Imlay City. An evident introduction by means of the railroad. No. 6688, August 15.

*Allionia Nyctaginia*, Michx. Becoming frequent and widely spread through southeastern Michigan. Leaves broad, cordate or deltoid. Ypsilanti, No. 5252, June 15, 1919 and No. 6805, Sept. 12, 1923; Rochester, *Farwell and Walpole*, No. 5391, Sept. 4, 1919; Romulus, *Gladewitz and Farwell*, No. 6170, June 7, 1922; Oxford, *Gladewitz and Farwell*, Oct. 4, 1922 and *Farwell*, No. 6680, Aug. 8, 1923; Imlay City, No. 6683a, Aug. 15; Ann Arbor, No. 6785, Sept. 12, 1923; Geddes, No. 6805, Sept. 12, 1923.

Var. *minor* (Choisy) Farwell. Leaves much smaller, ovate-lanceolate to lanceolate, rounded to acute at base. Imlay City, No. 6683, Aug. 15; Ypsilanti, No. 6808, Sept. 19; Ann Arbor, No. 6787, Sept. 12, 1923; Pontiac, *Farwell and Gladewitz*, No. 6356, Aug. 16, 1922.

*Allionia Gladewitzii*, n. sp. Similar to the preceding but stem, branches, and inflorescence hirsute as in the next, the pubescence on the upper parts sometimes very glandular, sometimes glandless. Leaves varying from broadly obovate to broadly ovate, ovate-lanceolate, and oblong (2 to 7 cm long by 2 to 5 cm wide), obtuse, glabrous, thick and fleshy, entire or nearly so and more or less ciliate, subcordate, rounded or nar-



rowed at the base, the lower on broad margined petioles 1 cm long the upper subsessile or sessile; inflorescence axillary and terminal; calyx rose, on pedicels 7 or 8 mm; fruiting involucre 1 cm high and 2 cm across when expanded, on pedicels often 12 mm long; fruit narrowly or broadly obovoid 4 or 5 mm long, bearing 5 prominent ribs, the faces tuberculate, hirsute. It looks as though it might be a hybrid between the preceding and the following species, both of which are found in southeastern Michigan in their typical forms as well as in the varietal forms herewith mentioned. Apparently, this is closely related to the *A. polytricha* Standley but that is said to have strigose fruit and long petioled leaves.

*Allionia aggregata* (Ortega) Spreng. Stem and inflorescence hirsute, the latter also glandular; leaves ovate-lanceolate to lanceolate, sessile or subsessile, the lower more or less pilose, especially on the mid rib beneath, upper ones often glabrous; inflorescence single in the axils or cymose at the ends of the branches. Ypsilanti, No. 5253, June 15, 1819; French Landing, *Farwell and Gladewitz*, No. 6175, June 7, 1922.

Var. *hirsuta* (Pursh) Farwell. Leaves elongated-oblong or linear-lanceolate, hirsute; inflorescence a terminal panicle. Fenton, No. 6671, August 1.

*Alsine rubra* (L.) Crantz. Two stations are listed in the Michigan Flora, Litchfield and Rochester. Another is now added. Geddess, No. 6801, Sept. 12, 1923.

*Sagina procumbens*, L. Pearlwort. Usually found on wet rocks, etc.; but also on dry rocky or gravelly hillsides. The following collections were made near Lake Linden. Brink of Douglas Houghton Falls, No. 3914, October 11, 1914; foot of Douglas Houghton Falls, No. 6595, June 25, 1923; dry hillsides, No. 6594, June 25, 1923.

*Moehringia lateriflora* (L.) Fenzl. Shores of the Grand River at Grand Ledge, No. 6560, May 10, 1923.

*Cerastium longepedunculatum*, Muhl. In an old abandoned corn field where it was quite plentiful. Easily differentiated from *C. vulgatum* which it closely resembles, by its longer peduncles with their pods at right angles thereto. Erie, No. 6492,

May 30. Also on wet sandstone ledges at Grand Ledge, No. 6561, June 10, 1923.

*Silene latifolia* (Mill.) Britten and Rendle, var. *pubescens* (DC) n. comb. (*Silene inflata* var. *pubescens* DC. Fl. Fr. IV. p. 747; 1805). A variation of the species in which the leaves are conspicuously ciliate and whole plant more or less short hirsute. Banks near Whiteford Center, No. 6495, July 11.

*Nymphozanthus variegatus* (Engelm.) Fernald. Mr. G. S. Miller, Proc. Biol. Soc. Wash. XV. (1902) 11-13, pointed out very characteristic differences between this species and the closely related *N. advena* (Ait.) Fernald. The most important distinction lies in the petioles which in this species are flat, causing the leaves to lie flat on the water or when that recedes to lie flat on the ground; in *N. advena* the petioles are subterete and sooner or later raise their blades above the water. As this species occurs in Michigan, the blades are round-ovate or broadly oval usually around 16 to 22 cm long by 13 to 16 wide; the calyx is yellow with a reddish-purple base and the fruit is more or less purple. Keweenaw Co., No. 139, July 20, 1884; Detroit, No. 139a, Sept. 3, 1892; Orion, No. 139b, May 30, 1895; Billington, Farwell and Gladewitz, Lakeville Lake, No. 6655, July 26, 1923.

Var. *lutescens*, n. var. Blades of leaves oblong-oval, 30 to 34 cm in length by 19 to 21 wide; calyx yellow throughout or greenish at the base within; otherwise like the species. This evidently is intermediate between the typical form of the species and *N. advena*, being similar to the latter in the color of its flowers and in the large size of its leaves, but it has the large flowers, the purplish fruit and flat petioles of *N. variegatus*. Lakeville Lake, No. 6663, July 26, 1923.

*Nymphozanthus advena* (Ait.) Fernald. This species is said to occur at Detroit and various other places in southern Michigan. While I haven't found it at the places cited, it occurs in abundance both east and west of Pontiac. The only specimens collected were late in the season when the larger and better leaves had disintegrated. A few small leaves were gathered and a small, green flower bud and a larger, yellow one two-thirds or three-quarters grown; the subterete petioles are suf-



ficient to distinguish it at any season of the year; the leaves are apt to be raised above the surface of the water. South-western corner of Avon township, Oakland Co., No. 6871, Oct. 17.

*Ranunculus acris*, L., var. *Steveni* (Andrz.) Lange. This variety is distinguished by its broad leaf segments. Imlay City near the railway tracks, No. 6692, August 15.

*Isopyrum biternatum* (Raf.) Torr. and Gr. The flowering season had long passed but the plants were in perfect fruiting condition. Grand Ledge, No. 6549, June 10, 1923.

*Nigella Damascena*, L. Roadsides at Marine City; No. 6755, August 29.

*Sassafras Sassafras* (L.) Karst. Britton and Brown give the maximum height of this tree as 125 feet with a diameter of 7 feet. I had never heard of any *Sassafras*, nor seen any, that had a larger diameter than 8 or 10 inches in the region from Michigan to Alabama. It was, therefore, with much surprise that on May 23, Mr. Gladewitz and I found a tree of this species along the roadside not far from Washington, that measured 11 feet in girth about 5 feet from the ground. The trunk was about 12 feet in height and split through the middle and spread apart as though it had at some time been struck with lightning; the trunk gave rise to 5 large branches all springing from about the same point, each about one foot in diameter. Compared with the above quoted dimensions this would be a small tree. It was in full flower and we borrowed a ladder from a nearby farmer to procure specimens; No. 6487.

*Sinapis alba*, L. The White Mustard is not often encountered in southeastern Michigan; but it is quite frequent along the railways near Mt. Clemens; No. 6859, October 10.

*Erucastrum Gallicum* (Willd.) O. E. Schulz. Monroe, No. 6698, August 22; Whitmore Lake, No. 6775, September 29; Rochester, No. 6849, October 3.

*Diplotaxis tenuifolia* (L.) DC. Banks of the Grand Trunk railroad near Linden. New to Michigan, so far as I can tell; No. 6667, August 1.

*Radicula sylvestris* (L.) Druce. Mr. Walpole showed us a

yellow-flowered cress growing on the College grounds which proved to be this species. East Lansing, No. 6523, June 9, 1916.

*Drosera linearis*, Goldie. The plants were just beginning to flower. Peat bogs at Eagle Harbor, No. 6610, June 29, 1923; Clifton, No. 168, Aug. 10, 1884; Shores of Mark Lake, July 9, 1916.

*Geum Canadense*, Jacq. In open woods near Monroe, No. 6704, August 22. Nearby was found var. *camporum* (Rydb.) Fernald and Weath.; No. 6705, August 22.

*Geum Virginianum*, L., var. *Murrayanum*, Fernald. Differs from the species in having the fruit glabrous on its faces, while those of the type are bristly. With the preceding; No. 6706, August 22.

*Poterium Sanguisorba*, L. Not enumerated by Beal. First found here by Mr. Walpole. Railway banks at East Lansing, No. 6538, June 9, 1923.

*Sanguisorba Canadensis*, L. This is abundant in places along the railway tracks near Wiards Siding in Washtenaw Co.; No. 6813, September 19. Also near Sheldon, Wayne Co.; No. 6825, September 19.

*Prunus Avium*, L. The Sweet Cherry or Massard is found to be frequent along roadsides in the vicinity of Washington; No. 6488, May 23.

*Amygdalus Persica*, L. The Peach was observed along roadsides in the vicinity of Washington. Generally, the trees had been broken down and badly injured but young branches springing up gave them the appearance of small shrubs, 4 or 5 feet high; well covered with flowers; No. 6489, May 23.

*Lespedeza capitata*, Michx., var. *sericea* (Hk. & Arn.) T. & G. Leaflets linear-oblong and densely silky sericeous all over. Near Orion, No. 6834, September 26.

*Vicia sparsiflora*, Nutt. Not cited in Beal's Michigan Flora. Found along the railways near Mt. Clemens, No. 6861a, October 10; in similar situations at Amy, No. 6875, October 17.

*Falcata Pitcheri* (T. & G.) OK. Shores of the Bell River at Marine City, No. 6742, August 29.

*Polygala ambigua*, Nutt. Plentiful in southwestern part of Avon township, Oakland Co.; No. 6867, October 17.

*Euphorbia corollata*, L., var. *viridiflora*, n. var. Hairy throughout, 2 to 8 dm high; stems erect, leafless below; leaves oblong, spatulate-oblong, oval, ovate-oblong or the uppermost linear-oblong, 1.5 cm to 4.6 cm long, 0.5 cm to 2.2 cm wide, sub-petiolate or sessile, retuse, rounded or tapering at base, scattered except for the terminal verticil of 3 to 5 leaves; inflorescence an oblong panicle composed of the terminal 3 to 5 rayed umbel and short axillary branches from the upper leaves, these leafless except for the small floral bracts; rays and branches 2 to 4 times dichotomously branched, the ultimate ramifications terminated by a single peduncle or rarely by an umbellet; no peduncle in the axils of the bifurcations; peduncle and pedicel, each about 3 mm long, fleshy, strict or arcuate; gland appendages light green, broadly oval 2 mm broad by 1.5 mm long, or smaller, when fully spread out 5 mm across or less. Oxford No. 6675, August 8, 1923.

*Euphorbia dentata*, Michx. Leaves ovate to lanceolate; seeds brownish-gray or ash colored. Geddes, No. 6797, Sept. 12, 1923.

*Euphorbia dentata*, Michx., var. *lancifolia*, n. var. Leaves elongated, linear or linear-lanceolate. Seeds, black. Geddes, No. 6798, Sept. 12, 1923.

*Viola pallens* (Banks) Brainerd. The leaves in this species are said to be glabrous on both sides. As it grows with *Tussilago Farfara* under tamaracks near Washington, the upper surfaces of the leaves vary from sparsely pubescent all over to entirely glabrous, at flowering time. No. 6485, May 23.

*Viola rostrata*, Pursh, var. *elongata*, Farwell. Under maples, near Washington, No. 6483, May 23.

*Oenothera cruciata*, Nutt. Stems reddish, strigose; petals linear, 12 mm long, 2 mm wide. This species is given a range of from Maine to N. Y. and Mass., by our local manuals. Our plant exactly fits the description in Gray's New Manual. Marine City, No. 6735, August 29.

*Oenothera parviflora*, L. *O. biennis* var. *parviflora* T. and G.; *O. muricata* var. *parviflora* Gates. Stem simple or

branched, appressed, pubescent, spreading or muricate hairs few or none; leaves narrow, under a dm. in length and less than 16 mm in width, repand denticulate; inflorescence compact, leafy; ovary 4-7 mm long, calyx-tube 2 cm long, bud club-shaped, red, 5 mm long, appendages separate; petals small, cuneate obcordate, slightly broader than long, 9 mm long by 10 mm broad at the apex; casule subfusiform cylindric, about 2 cm long, appressed pubescent, 4 valved, each valve 2-lobed. These plants undoubtedly are the Linnaean *Æ. parviflora*; the small size of the flowers is not an accidental condition due to the lateness of the season in which they appear or to any other cause; but a fixed status. I have observed these plants over a period of 10 years and the small flower is a constant character whether the plants flower early or late, or whether they appear on normal plants or on second growth due to cutting down, etc. Reported in the 19th Report of the Michigan Acad. Sci. as *Æ muricata* var. *parviflora* Gates. Additional locations are: Banks of the Clinton River near Rochester, No. 6851, October 3; Marquette, No. 195b, July 6, 1895; Detroit, No. 1992, July 23, 1906.

Var. *canescens* (T. and G.) n. comb. *Æ. biennis* var. *canescens* T. and G. Fl. N. A. I. (1840) 492. *Æ. strigosa* Rydb. Similar but larger and with larger flowers. Reported in Papers, Michigan Acad. Sci. Arts and Lets. I (1923) 96, as *Æ. muricata* var. *canescens* (T. and G.) Robinson. Additional locations are: Geddes, No. 2114, August 21, 1909; No. 4553½ Royal Oak, Sept. 8, 1917.

Var *muricata* (L.) n. comb. *Æ. muricata* L. Syst., Ed. 12, (1767) 263. Stems copiously and muricately hirsute. These probably are but varying phases of one species the oldest name for which is *Æ. parviflora* L. common throughout the State. Keweenaw Co., No. 195, Sept. 18, 1884; Marquette, No. 195c, July 6, 1895; Detroit, No. 195d, Aug. 3, 1905; Rochester, No. 2959, July 28, 1912, and No. 2972, Aug. 4, 1912; Parkedale, No. 2914, July 29, 1912; Stony Creek, No. 3828, Aug. 9, 1914; Dearborn No. 5596, Aug. 15, 1920.

Another *biennis*, L. Stems simple or branched, appressed pubescent, muricate hairs none, spike compact and leafless.

Small plants with simple stems usually growing in pure sand, by some authors have been confused with *OE. Oakesiana* and with *OE. parviflora* var. *canescens*. Common throughout the state. Keweenaw Co., No. 721, Sept. 1, 1889; Woodville, No. 5957, Aug. 4, 1921; Slocum's Island, No. 5986, Aug. 31, 1921.

Var. *rubricaulis* (Farwell) n. comb. *Æ. muricata* var. *rubricaulis* Farwell, Papers, Mich. Acad. Sci. Arts and Lets. I (1923) 95, 96. Appears to be hybrid between *Æ. biennis* and *Æ. muricata* with the leafless spikes of the former and the muricate pubescence of the latter. Stems purplish-red, leaves more or less suffused with red.

*Anethum graveolens*, L. Dill. Roadsides, associated with *Hibiscus Trionum*. Erie, No. 6642, July 11.

*Primula Mistassinica* Mx. Similar to *P. farinosa* but easily distinguished by its thin, veiny leaves, with little or no trace of mealiness, its longer pedicles and corolla tubes. Sandstone ledges at Grand Ledge, No. 6563, June 10, 1923.

*Fraxinus Michauxii*, Britton. One of the segregates of *F. Pennsylvanica* Marsh. Near Monroe, No. 6703, August 22.

*Asclepias Sullivantii*, Engelm. Similar to *A. Syriaca* but smooth throughout, its flower buds twice as large and the flowers larger, usually darker purple but varying to almost white. Occasionally, the upper part of the stem is fasciated and bears the leaves in whorls of four. Erie, No. 6639, July 11.

*Asclepias verticillata*, L. This species usually is said to be from a fibrous root. It is from a slender, horizontal rhizome, 1.5 mm thick or less, from 4 to 19 cm under the surface; it is not shown on plants that have been pulled up; in order to obtain it, it must be dug up. Stems arise singly at one or more nodes of the rhizome; the aerial portion of the stem dies down to the surface of the earth at the close of each floral season and the subterranean part sends up one or more branches from one or more of its nodes at the beginning of the following season; also from the same nodes, fascicles of fibrous roots of about the same size as the rhizome arise. I have seen as many as 25 branches arising in this way from the original stem which had become 8 mm thick at the point of contact with the

rhizome, its thickest part. Sandy banks along the railroad. Metamora, No. 6648, July 18 and August 8.

*Isanthus brachiatus* (L.) BSP. This mint is known as False Pennyroyal. It is not listed in Beal's Michigan Flora. Found along the railway tracks west of Ypsilanti. Scarce. No. 6803, Sept. 12, 1923.

*Scutellaria parvula*, Michx., var. *ambigua* (Nutt.) Fernald. Beal lists the typical form of the species but not the variety. First found here by Mr. Walpole. Railway banks at East Lansing, No. 6541, June 9, 1923.

*Monarda fistulosa*, L., forma *albescens*, n. f. Flowers white. A rare color form of the species, the typical form of which is not at all-common in southeastern Michigan. Metamora, No. 6650, July 18.

*Mentha Cardiaca*, Gerarde. Not cited in Beal's Michigan Flora. A large patch of it was found in Mt. Clemens township near Fraser; No. 6860, Oct. 10. Also at Fraser, No. 6862, October 10.

*Physalis heterophylla*, Nees, var. *Nyctaginea* (Dunal) Rydb. Leaves thin, nearly glabrous. Geddes, No. 6799, Sept. 12, 1923.

*Castilleja coccinea* (L.) Spreng. The Indiana Paint Brush is found throughout the State, in meadows or moist thickets, but is less frequent in the Upper Peninsula than in the Lower. Goodison, No. 6503, June 6. Also, Keweenaw Co., No. 220, June 16, 1885; Detroit, No. 220a, May 17, 1898; Birmingham, No. 220b, Sept. 16, 1903; Parkedale, No. 3398, May 25, 1913. This species often shows two color variations; one in which the calyx and bracts are yellow and another in which they are white. I have not been able to find that these color variations have been named; they may be known respectively as forma *lutescens* and forma *alba*.

Forma *lutescens*, n. f. Calyx and bracts yellow. Goodison, No. 6506, June 6.

Forma *alba*, n. f. Calyx and bracts white. Goodison, No. 6507, June 6.

*Plantago lanceolata*, L., var. *capitata*, Presl. Spikes very short, mostly globular or oblong; in dry, sterile ground near Monroe; No. 6707, August 22.



*Vernonia interior*. Small. After many years this again has been collected. Monroe, No. 6700, August 22.

*Solidago graminifolia* (L.) Salisb. In low grounds near Orion. These plants are minutely scabrous but are to be referred here rather than to the *hirtellus* var. *Nuttallii* which is everywhere common. This is the first time I have seen the typical species in southeastern Michigan. No. 6832, September 26.

*Aster laevis*, L., var. *falcatus*, Farwell. Ypsilanti, No. 6809, Sept. 19. Here also was found a very handsome form with violet-purple rays which as a color variation may be put on record as *Aster laevis*, var. *falcatus*, forma *purpurascens*, n. f. No. 6811, September 19.

*Aster ericoides*, L., var. *villosus*, T. and G. Waste grounds along the shores of St. Clair River at Marine City, No. 6740, August 29.

*Aster ericoides*, L., var. *platyphyllus*, T. and G. Open fields near the Bell River at Marine City, No. 6739, August 29.

*Erigeron Canadense*, L., var. *pusillum* (Nutt.) Barton. A low, slender form with a fastigate tendency. Denton, No. 6817, Sept. 19. Geddes, No. 6793, Sept. 12, 1923; Oxford No. 6829, September 19; Avon, No. 6848, October 3.

*Erigeron Canadense*, L., var. *strictum* (DC.) n. comb. *Erigeron strictum* DC. Prodr. V (1836) 289. Stem simple, strict; leaves densely crowded, those at the middle of the stem being the longest; inflorescence dense, spiciform 3 to 9 cm long by 1 to 3 cm wide. The spike or thyrse is as dense as that of *Solidago bicolor* to which it bears a superficial resemblance; this is a variation that is well worth recognition. Although De Candolle based his species on Berlandier's plants from around Bejar, Mexico, there can be no doubt that our plants belong here as they agree in every particular with De Candolle's description. Growing with the species on waste grounds at Marine City, No. 6722, August 29; Oxford No. 6828, September 26; Avon, No. 6847, October 3. The Marine City plants are typical in every way; but the Oxford and Avon plants are less so as the panicles though spiciform are less dense and the leaves are not congested.

*Silphium laciniatum*, L. On the railway right of way near Sheldon. Only basal leaves were found, these being elliptical or elliptical-lanceolate in outline, acute at both ends, entire to pinnatifid with oblong lanceolate, acute, entire lobes, the larger leaves often a meter or more in length with a blade about 26 cm wide and a petiole equalling its own length. No. 6824, September 19.

*Heliopsis helianthoides* (L.) Sweet. On the banks of the Clinton at Mt. Clemens. Rather scarce. No. 6858, October 10.

*Heliopsis scabra*, Dunal, var. *intermedia*, Farwell. This is the commonest *Heliopsis* in southeastern Michigan. Oxford, No. 6673, August 8, 1923.

*Rudbeckia laciniata*, L. Near Denton, No. 6819, September 19. Nearby we also found as an escape from cultivation the double-flowered form called Golden Glow; No. 6820, September 19.

*Rudbeckia triloba*, L. Plentiful along the banks of the Bell River at Marine City; No. 6737, August 29.

*Helianthus lenticularis*, Dougl. Near Denton, No. 6818, September 19.

*Helianthus scaberrimus*, Ell., var. *subrhomboideus* (Rydb.) n. comb. *H. subrhomboideus* Rydb. Mem. N. Y. Bot. Gard. I (1900) 419. Reported as *H. scaberrimus* Ell. page 262, 19th Ann. Rpt. of the Mich. Acad. Sci. Except that of size, there seems to be no constant character by which this can be separated from *H. scaberrimus*; it is therefore better treated as a variety of it, if accorded a recognizable categorical rank. Thomas, No. 6646, July 18. Ann Arbor, No. 6786, Sept. 12, 1923.

*Cosmos bipinnatus*, Cav. An escape from cultivation. Waste grounds at Marine City, No. 6727, August 29; barnyards at Avon, No. 6856, October 3.

*Tussilago Farfara*, L. As reported in my last paper, this species was found in a tamarack swamp near Washington; there were two patches of it; one, near the edge underneath the tamaracks and another in the heart of the swamp, underneath cedars. On May 23, 1923, a half mile distant from the swamp, southerly, toward Washington, another patch was

found along the banks of the electric railway; it was plentiful, bearing both flowers and fruit, and gave indications of continuing to bloom for a number of days longer. Flowers bright yellow fading to reddish. No. 6490.

*Arctium Lappa*, L. This is the first time it has been seen in many years, the all but universal species in southeastern Michigan being *A. minus*. Near Monroe, No. 6720, August 22; Keweenaw Co., No. 452, August 20, 1886; Ypsilanti, No. 452a, August 12, 1891; Detroit, No. 452b, July 1, 1894.

*Tragopogon porrifolius*, L. Salsify; Oyster Plant. Cultivated for its esculent root which has an oyster-like flavor. Naturalized throughout the state. It has been observed in many places from the Ohio line to Lake Superior. Involucral bracts 8, twice longer than the purple flowers, the peduncles much swollen under the heads. Clifton, No. 309, August 6, 1885; Detroit, No. 309a, June 27, 1909.

*Tragopogon pratensis*, L. Goat's Beard. Involucral bracts 8, equal to or shorter than the yellow flowers; leaves wavy margined but with straight tips; peduncles not swollen. Ypsilanti, No. 1247, June 21, 1892; Keweenaw Co., No. 1247a, July 2, 1895.

Var. *tortilis*, Mey. The tips of the leaves are twisted like a corkscrew. Involucral bracts 8 usually overlapping, obtuse. Seed 10-14 mm. long, tuberculately scabrous, tapering into a filiform beak 7-10 mm. long. Head of fruit, spherical, about 9 cm. in diameter, Rochester, No. 2962. September 29, 1912; Parkedale, No. 3337, May 25, 1913; Shelbyville, No. 6483, June 21, 1923; Lake Linden, No. 6589, June 25, 1923; Calumet, No. 6598a, June 25, 1923.

*Tragopogon major*, Jacq. Leaves linear-lanceolate, entire, acuminate as in *T. porrifolius*; bracts of the involucre 12 to 15, acuminate and twice longer than the yellow flowers; peduncles much swollen under the heads; seed roughened by coarse scales, about 15 mm. long and tapering into a filiform beak of about its own length; head of fruit spherical, about 14 cm. in diameter. Shelbyville, No. 5560, July 22, 1920, and June 21, 1923. The flowers of the species of *Tragopogon* often have closed as early as 8 or 9 o'clock in the morning. The large

feathery fruiting heads are both conspicuous and beautiful. Shelbyville probably is the only station in North America where *T. major* is known to occur; its involucre bracts are about 3 cm long at time of flowering and 6 at full maturity of the fruiting head.

*Sonchus arvensis*, L., var. *maritimus*, Wahl. Fl. Suec. (1824) 483. *S. intermedius* Bruckn. ex Koch. Syn. (1931) 434; *S. arvensis* var. *laevipes* Koch. l. c., Ed. 2, 11 (1884) 482 and Reichb. Ic. Fl. Germ. XIX (1858) 29, table 61. MCCCCXII. Figure 11. *S. arvensis* var. *intermedius* (Bruckn) Nyman Fl. Euro. (1878-1882) 433. This variety differs from the species only in not being glandular. In a preceding paper I united it with var. *glabrescens* Gunth., Grab. and Wimm.; but at that time I hadn't seen any living plants of it. The flower heads are 3.5 to 5 cm wide, flowers orange, achene linear, about 2.5 mm long, involucre 13-20 mm high. Imlay City, No. 6684½, August 15; Wiard, No. 6813, September 19; Geddes, No. 6790, September 12, 1923.

The var. *glabrescens* has a smaller head, not over 3.5 cm wide, flowers lemon yellow, seeds elliptic, about 1.75 mm. long, involucre smaller, not over 12 mm high.

The typical, glandular form of the species is quite common and widely distributed in southeastern Michigan.

*Hieracium Florentinum*, All. This species, commonly called King Devil, covers the sandy or gravelly hillsides near Lake Linden in great profusion. No. 6590, June 25, 1923. It has also spread into rich muck lands of drained swamps near Calumet where it is of gigantic size, 10-15 dm. high; No. 6598b, June 21, 1923.

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## On the Naiades of Long Island, New York.

N. M. GRIER, PH. D.

The following species are cited as occurring in this region: *Elliptio complanatus* Dillwyn (1). Described as being moderately abundant at Riverhead; *Anodonta implicata* Say (2, 3). Found in lake at Prospect Park, Brooklyn, and at Baisley's Lake, Jamaica South; *Anodonta cataracta* Say (3), from Kissena Park lake, Flushing. The writer notes the occurrence of this species at Lake Ronkonkema, a glacial kettle hole lake near the center of the island, where it seems fairly common. This species is widely distributed over the Atlantic slope. A number of specimens were transferred to St. John's lake, Cold Spring Harbor, in August, 1923, where their further progress may be noted.

Ortmann remarks of the close relationship of *cataracta* and *implicata*, the latter differing from the former only by a thickening of the shell along its lower margin, a distinction hardly noticeable in young shells. *Anodonta* sp. are usually thin-shelled under any condition of environment. Their ready adaptation to the lime-free waters of Long Island is thus easily understood. *E. complanatus* is a puzzling species due to the large number of variants representing it. While it is described as having a moderately thick shell, yet a form of it with shell so soft as to be easily indented with the finger, has been reported from a soft-water lake in New York (4). This would seem to indicate similar adaptability as the *Anodontas*. All are members of the depauperate Atlantic Coast Fauna, having been reported from New England by Johnson (5), and being found further south. The fair probability is their introduction on Long Island, one way or another through the agency of birds.

A similarly curious distribution is reported for *A. cataracta* from the Tennessee drainage. This shell is not found in the Upper Tennessee drainage above Chattanooga except at a

small pond near Knoxville, and at Wartburg on the Emory river. Yet it is abundant in the adjacent Cumberland river. Here again transportation by birds is the most plausible factor to invoke to account for its presence in the pond at Knoxville, inasmuch as it is absent from the main river. Finally with regard to Long Island shells, it is undoubtedly true that other species can be transported similarly, but it is possible that the chemical composition of the water has favored the species cited.

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## Birds of Notre Dame, Indiana.

BROTHER ALPHONSUS, C. S. C.

### I.—AUTUMN MIGRANTS, 1919.

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|-----------------------------------|----------------------------|
| September 4.                      | * September 27.            |
| 1.—White-throated Sparrow.        | 20.—Indigo Bird.           |
| September 6.                      | 21.—Yellow-throated Vireo. |
| 2.—Bobolink.                      | September 28.              |
| September 8.                      | 22.—Wood Pewee.            |
| 3.—Pine Warbler.                  | September 29.              |
| September 11.                     | 23.—Myrtle Warbler.        |
| 4.—Olive-backed Thrush.           | 24.—Purple Martin.         |
| September 12.                     | October 3.                 |
| 5.—Kingbird.                      | 25.—Gray-cheeked Thrush.   |
| September 13.                     | October 4.                 |
| 6.—Bay-breasted Warbler.          | 26.—Purple Finch.          |
| September 15.                     | October 6.                 |
| 7.—Redstart.                      | 27.—Golden-crowned Kinglet |
| September 17.                     | October 14.                |
| 8.—Warbling Vireo.                | 28.—Ruby-crowned Kinglet.  |
| 9.—Red-eyed Vireo.                | October 30.                |
| 10.—Sapsucker.                    | 29.—Bluebird.              |
| September 20.                     | November 2.                |
| 11.—Magnolia Warbler.             | 30.—Robin.                 |
| 12.—Black-poll Warbler.           | November 7.                |
| 13.—Black-throated Green Warbler. | 31.—Tree Sparrow.          |
| September 22.                     | November 12.               |
| 14.—Savanna Sparrow.              | 32.—Vesper Sparrow.        |
| September 23.                     | November 14.               |
| 15.—Oven-bird.                    | 33.—Fox Sparrow.           |
| September 25.                     | November 15.               |
| 16.—Palm Warbler.                 | 34.—Killdeer.              |
| 17.—Brown Creeper.                | November 16.               |
| 18.—Catbird.                      | 35.—Bronzed Grackle.       |
| September 26.                     | November 21.               |
| 19.—White-crowned Sparrow.        | 36.—Kingfisher.            |
|                                   | December 2.                |
|                                   | 37.—Mourning Dove.         |

## II.—AUTUMN MIGRANTS, 1920.

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|-----------------------------|----------------------------|
| September 12.               | October 3.                 |
| 1.—Spotted Sandpiper.       | 22.—Chimney Swift.         |
| September 13.               | 23.—Nashville Warbler.     |
| 2.—Red-headed Woodpecker.   | 24.—Gray-cheeked Thrush.   |
| 3.—Palm Warbler.            | October 5.                 |
| September 15.               | 25.—Yellow-billed Cuckoo.  |
| 4.—Warbling Vireo.          | October 6.                 |
| September 18.               | 26.—Purple Finch.          |
| 5.—White-throated Sparrow   | October 7.                 |
| September 19.               | 27.—Myrtle Warbler.        |
| 6.—Brown Creeper.           | 28.—Pine Warbler.          |
| 7.—Olive-backed Thrush.     | October 8.                 |
| 8.—Black-throated Green     | 29.—White-crowned Sparrow. |
| Warbler.                    | 30.—Fox Sparrow.           |
| September 20.               | October 10.                |
| 9.—Ruby-crowned Kinglet.    | 31.—Phoebe.                |
| 10.—Red-breasted Nuthatch.  | October 15.                |
| 11.—Redstart.               | 32.—Brown Thrasher.        |
| September 23.               | 33.—House Wren.            |
| 12.—Whip-poor-will.         | October 18.                |
| September 25.               | 34.—Cowbird.               |
| 13.—Bay-breasted Warbler.   | October 21.                |
| September 27.               | 35.—Mourning Dove.         |
| 14.—Tennessee Warbler.      | October 23.                |
| 15.—Chestnut-sided Warbler. | 36.—Flicker.               |
| September 28.               | October 24.                |
| 16.—Wood Pewee.             | 37.—Vesper Sparrow.        |
| September 30.               | 38.—Field Sparrow.         |
| 17.—Snowbird.               | 39.—Chipping Sparrow.      |
| October 1.                  | October 30.                |
| 18.—Cowbird.                | October 31.                |
| 19.—Sapsucker.              | 40.—Red-poll.              |
| October 2.                  | October 31.                |
| 20.—Golden-crowned Kinglet. | 41.—Tree Sparrow.          |
| 21.—Black-throated Blue     | November 1.                |
| Warbler.                    | 42.—Towhee.                |

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|---------------------------|-----------------|
| November 6.               | November 30.    |
| 43.—Canada Goose.         | 45.—Killdeer.   |
| November 7.               | December 3.     |
| 44.—Red-winged Blackbird. | 46.—Kingfisher. |

## AUTUMN MIGRANTS, 1921.

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|----------------------------------|-----------------------------|
| September 14.                    | September 26.               |
| 1.—Gray-cheeked Thrush.          | 22.—Sapsucker.              |
| September 18.                    | 23.—House Wren.             |
| 2.—Kingbird.                     | September 27.               |
| 3.—Redstart.                     | 24.—Catbird.                |
| September 19.                    | 25.—Yellow-billed Cuckoo.   |
| 4.—Wood Pewee.                   | 26.—Solitary Sandpiper.     |
| 5.—Black-throated Green Warbler. | 27.—Nighthawk.              |
|                                  | 28.—Olive-backed Thrush.    |
| September 20.                    | October 1.                  |
| 6.—Golden-crowned Kinglet.       | 29.—Hermit Thrush.          |
| 7.—Ruby-crowned Kinglet.         | October 5.                  |
| 8.—White-crowned Sparrow.        | 30.—Red-breasted Nuthatch.  |
| 9.—Pine Warbler.                 | 31.—Fox Sparrow.            |
| September 21.                    | October 6.                  |
| 10.—Snowbird.                    | 32.—Purple Finch.           |
| 11.—Savanna Sparrow.             | October 7.                  |
| 12.—White-throated Sparrow.      | 33.—Cowbird.                |
| 13.—Magnolia Warbler.            | October 8.                  |
| September 22.                    | 34.—Tree Sparrow.           |
| 14.—Yellow-throated Vireo.       | October 9.                  |
| 15.—Tennessee Warbler.           | 35.—Rose-breasted Grosbeak. |
| 16.—Connecticut Warbler.         | October 11.                 |
| September 23.                    | 36.—Chipping Sparrow.       |
| 17.—Brown Creeper.               | October 16.                 |
| 18.—Nashville Warbler.           | 37.—Chimney Swift.          |
| September 24.                    | October 19.                 |
| 19.—Red-breasted Nuthatch.       | 38.—Field Sparrow.          |
| 20.—Oven-bird.                   | October 20.                 |
| September 25.                    | 39.—Brown Thrasher.         |
| 21.—Myrtle Warbler.              | October 23.                 |
|                                  | 40.—Vesper Sparrow.         |

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|-------------------------|----------------------|
| October 24.             | 45.—Bronzed Grackle. |
| 41.—Pied-billed Greble. | November 8.          |
| October 28.             | 46.—Meadowlark.      |
| 42.—Towhee.             | November 14.         |
| October 29.             | 47.—Killdeer.        |
| 43.—Bluebird.           | November 17.         |
| 44.—Robin.              | 48.—Kingfisher.      |

## AUTUMN MIGRANTS, 1922.

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|----------------------------|-----------------------------------|
| September 10.              | 17.—Hermit Thrush.                |
| 1.—Redstart.               | 18.—Black-throated Green Warbler. |
| September 11.              | October 5.                        |
| 2.—Crested Fly-catcher.    | 19.—Chimney Swift.                |
| 3.—Rose-breasted Grosbeak. | October 8.                        |
| September 13.              | 20.—White-crowned Sparrow.        |
| 4.—Sapsucker.              | October 11.                       |
| September 18.              | 21.—Ruby-crowned Kinglet.         |
| 5.—Oven-bird.              | October 12.                       |
| September 21.              | 22.—Savanna Sparrow.              |
| 6.—Golden-crowned Kinglet. | 23.—White-throated Sparrow.       |
| September 24.              | October 14.                       |
| 7.—Snowbird.               | 24.—Nashville Warbler.            |
| September 25.              | October 17.                       |
| 8.—Brown Creeper.          | 25.—Flicker.                      |
| September 27.              | 26.—Chipping Sparrow.             |
| 9.—Wood Pewee.             | October 18.                       |
| September 30.              | 27.—Phoebe.                       |
| 10.—Red-breasted Nuthatch. | 28.—Fox Sparrow.                  |
| 11.—Yellow-billed Cuckoo.  | October 21.                       |
| October 1.                 | 29.—Vesper Sparrow.               |
| 12.—Catbird.               | October 22.                       |
| October 2.                 | 30.—House Wren.                   |
| 13.—Blue-headed Vireo.     | October 30.                       |
| 14.—Brown Thrasher.        | 31.—Kingfisher.                   |
| 15.—Myrtle Warbler.        | November 5.                       |
| October 3.                 | 32.—Cedarbird.                    |
| 16.—Cowbird.               |                                   |

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|--------------------|--------------------|
| November 6.        | November 15.       |
| 33.—Tree Sparrow.  | 36.—Pine Siskin.   |
| November 7.        | November 16.       |
| 34.—Field Sparrow. | 37.—Purple Finch.  |
| November 10.       | November 30.       |
| 35.—Towhee.        | 38.—Pine Grosbeak. |

## AUTUMN MIGRANTS, 1923.

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|----------------------------------|-----------------------------|
| September 3.                     | 17.—Ruby-crowned Kinglet.   |
| 1.—Red-breasted Nuthatch.        | 18.—Sapsucker.              |
| 2.—Pine Warbler.                 | September 26.               |
| September 4.                     | 19.—Wood Pewee.             |
| 3.—Green Heron.                  | September 29.               |
| 4.—Cedarbird.                    | 20.—Catbird.                |
| September 8.                     | October 1.                  |
| 5.—Oven-bird.                    | 21.—Chimney Swallow.        |
| September 9.                     | 22.—White-throated Sparrow. |
| 6.—Black and White Warbler.      | October 3.                  |
| 7.—Black-throated Green Warbler. | 23.—Brown Thrasher.         |
| September 11.                    | 24.—Snowbird.               |
| 8.—Red-headed Woodpecker.        | 25.—Olive-backed Thrush.    |
| September 17.                    | October 4.                  |
| 9.—Indigo Bird.                  | 26.—Brown Creeper.          |
| September 18.                    | October 6.                  |
| 10.—Purple Martin.               | 27.—Myrtle Warbler.         |
| 11.—Bittern.                     | October 7.                  |
| September 20.                    | 28.—Hermit Thrush.          |
| 12.—White-throated Sparrow.      | October 8.                  |
| September 23.                    | 29.—Tufted Titmouse.        |
| 13.—Golden-crowned Kinglet.      | 30.—Yellow-billed Cuckoo.   |
| September 24.                    | October 11.                 |
| 14.—Blue-headed Vireo.           | 31.—House Wren.             |
| September 25.                    | October 14.                 |
| 15.—Nashville Warbler.           | 32.—Blue-headed Vireo.      |
| 16.—Magnolia Warbler.            | 33.—Palm Warbler.           |
|                                  | October 15.                 |
|                                  | 34.—Kingfisher.             |

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|----------------------|---------------------------|
| October 20.          | October 29.               |
| 35.—Fox Sparrow.     | 44.—Canada Goose.         |
| 36.—Purple Finch.    | October 30.               |
| October 22.          | 45.—Red-winged Blackbird. |
| 37.—Vesper Sparrow.  | November 1.               |
| October 23.          | 46.—Robin.                |
| 38.—Flicker.         | November 8.               |
| 39.—Mourning Dove.   | 47.—Tree Sparrow.         |
| 40.—Hell Diver.      | November 10.              |
| October 24.          | 48.—Killdeer.             |
| 41.—Bronzed Grackle. | November 13.              |
| 42.—Bluebird.        | 49.—Towhee.               |
| 43.—Phoebe.          |                           |

NOTRE DAME, IND.







